



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,784	02/22/2002	Michael S. Rothberg	K35A0462	1166

26332 7590 10/06/2004

WESTERN DIGITAL CORP.  
20511 LAKE FOREST DRIVE  
C205 - INTELLECTUAL PROPERTY DEPARTMENT  
LAKE FOREST, CA 92630

EXAMINER

SLAVITT, MITCHELL R

ART UNIT	PAPER NUMBER
----------	--------------

2651

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/080,784	Applicant(s) ROTHBERG, MICHAEL S.	
	Examiner Mitchell R Slavitt	Art Unit 2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2002.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 9, 10, 14-16, 19, 22 and 23 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 7, 8, 11-13, 17, 18, 20, 21 and 24-26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 22 February 2002 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/22/02</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 6, 9, 14-16, 19, and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Patapoutian et al. (Patapoutian).

Regarding claims 1 and 14, Patapoutian teaches a disk with tracks and sectors (blocks) and a head actuated radially over the disk (col 1, line 66 to col 2, line 9).

Patapoutian also teaches a buffer for the read data (col 2, lines 19-22 and Figs 2 and 3A). Patapoutian further teaches if a read error occurs, a second reading results and an averaging of the first and second readings are made and the results processed (col 1, lines 35-54).

Regarding claims 2 and 15, the averaged read data is comprised of averaged binary bits (col 3, lines 12-30).

Regarding claims 3 and 16, the disk controller implements an ECC (col 3, lines 1-8).

Regarding claims 6 and 19, Patapoutian teaches a sample from a block of information (col 1, lines 2-4).

Art Unit: 2651

Regarding claims 9 and 22, prior to rereading the block for a second time, a counter is incremented (col 3, lines 9-12).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patapoutian in view of Galbraith et al. (Galbraith). Patapoutian teaches all the elements of the claims except for a disk controller adjusting a read channel. Galbraith teaches this element at para [0024]. At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the apparatus and method of Patapoutian by adjusting the read channel prior to reading by setting the read channel to a recovery mode to allow a successful read by ECC/CRC.

***Allowable Subject Matter***

5. Claim 4-5, 7-8, 11-13, 17-18, 20-21, 24-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 4 and 17, dependent on claims 3 and 16 respectively, teach (a) the averaged binary bits are grouped into ECC symbols; (b) a reliability metric is generated for each ECC symbol in response to a reliability derived from averaging the binary bits; (c) the disk controller processes the reliability metrics to augment the ECC.

Claim 7, dependent on claim 6, teaches a read channel for detecting an estimated data sequence from the averaged read signal sample values.

Claims 10 and 23, dependent on claims 9 and 22, teach the disk controller adjusts a read channel parameter.

Claims 11 and 24, dependent on claims 9 and 22, teach the disk controller adjusts a servo control parameter.

Claim 20, dependent on claim 19, teaches the step of detecting an estimated data sequence from the averaged read signal sample values.

### ***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mitchell R Slavitt whose telephone number is (703) 305-2809. The examiner can normally be reached on M-F (6:30-4:00), 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran, can be reached on (703) 305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 2651

MS  
9/20/04 *ms*

*Andrew L. Sniezek*  
ANDREW L. SNIEZEK  
PRIMARY EXAMINER